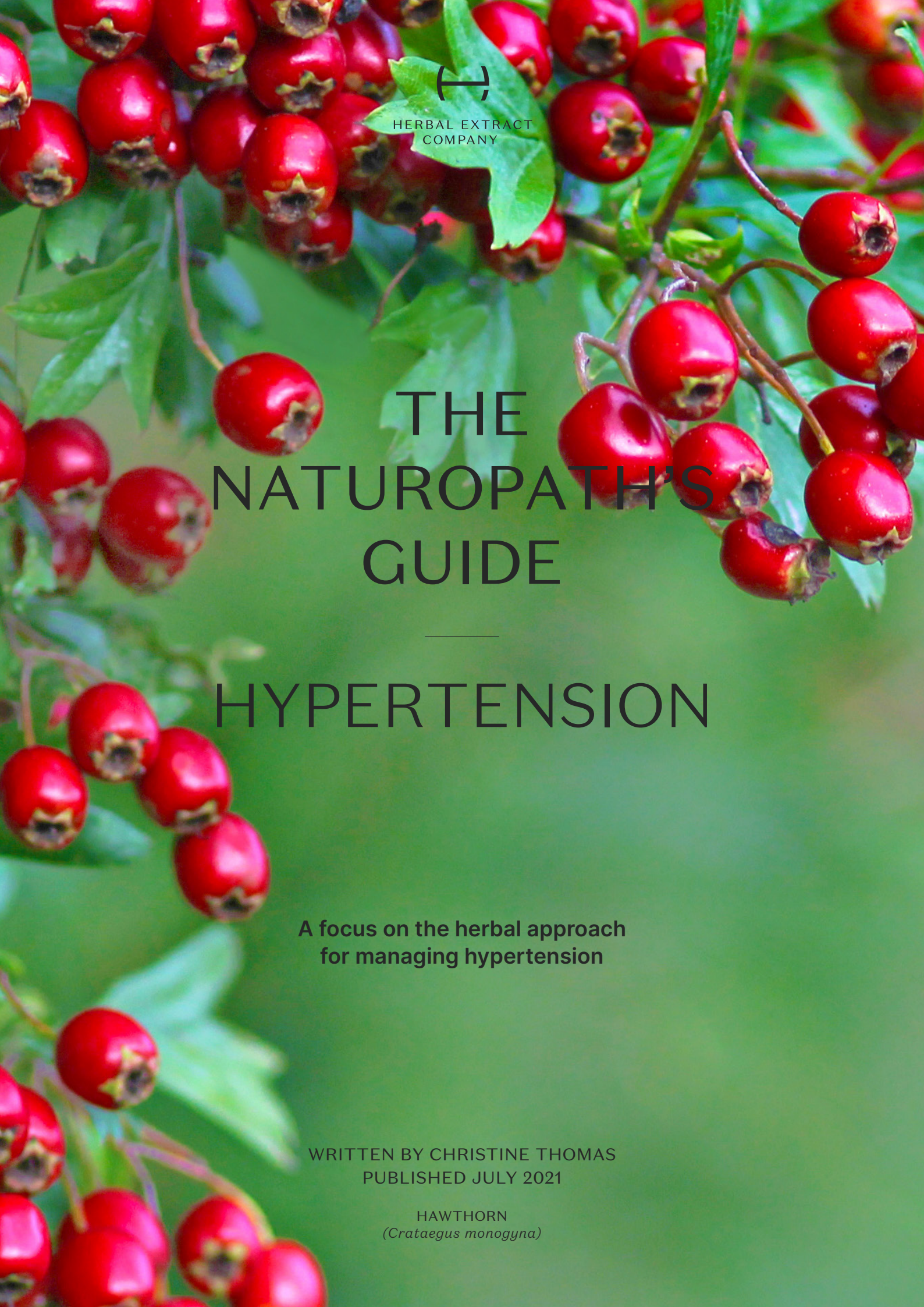

HERBAL EXTRACT COMPANY

THE NATUROPATH'S GUIDE

HYPERTENSION

A focus on the herbal approach for managing hypertension

WRITTEN BY CHRISTINE THOMAS
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HAWTHORN
(Crataegus monogyna)

HYPERTENSION

Hypertension, which is the medical term for high blood pressure, is a common disorder of the circulatory system.

It is a serious chronic condition that significantly increases the risks of heart, brain, kidney and other diseases.

Hypertension is a major cause of premature death worldwide. It is usually asymptomatic leading to its label as a "silent killer" because blood pressure can be elevated for years without discovery unless the person regularly assesses it.

Condition Overview

Hypertension is a worldwide epidemic affecting an estimated 1.13 billion people. It is no longer a disease of the western developed world and recent epidemiological data suggests that it is now also prevalent in low and middle income countries. This increase is due mainly to a rise in hypertension risk factors in those populations. Based on measured data from the 2017 to 2018 Australian Bureau of Statistics National Health Survey about one in three people aged 18 and over (34%) have hypertension in Australia.

Hypertension is classified as either primary (essential) or secondary. About 90 to 95% of cases are termed primary, which refers to high blood pressure for which no medical cause can be found. The remaining five to 10% of cases are secondary with kidney disease the most common cause but may include endocrine diseases, pregnancy and other conditions that affect the arteries.

The heart muscle works hard to ensure that an adequate oxygen and nutrient-rich blood supply is continuously pumped to the organs and tissues of the body to sustain life. Blood pressure is the force exerted by this circulating blood against the walls of the body's arteries which are the major blood vessels in the body. Blood pressure is measured in units of millimetres of mercury (mmHg).

The readings are always written as two numbers with the upper (systolic) value first, followed by the lower (diastolic) value. The first (systolic) number represents the pressure in blood vessels when the heart contracts or beats. The second (diastolic) number represents the pressure in the vessels when the heart rests between beats. For hypertension diagnosis blood pressure is always measured on a number of different days and when at rest.

- A normal blood pressure level is less than 120/80mmHg.
- Elevated blood pressure may also be called prehypertension. Elevated blood pressure is a systolic pressure ranging from 120 to 129mmHg and a diastolic pressure below (not above) 80mmHg. Elevated blood pressure tends to get worse over time unless steps are taken to control it.
- Stage 1 hypertension is a systolic pressure ranging from 130 to 139mmHg or a diastolic pressure ranging from 80 to 89mmHg.

- Stage 2 hypertension (more severe hypertension) is a systolic pressure of 140mmHg or higher or a diastolic pressure of 90mmHg or higher.
- Hypertensive crisis is a blood pressure measurement higher than 180/120mmHg and is an emergency situation that requires urgent medical care.

Hypertension is a major independent risk factor for coronary artery disease, stroke and kidney failure. Each increase of 20mmHg in systolic blood pressure and 10mmHg in diastolic blood pressure, over the range of 115/75 to 185/115mmHg, doubles the risk of a fatal coronary event.

Among other complications hypertension can cause serious damage to the heart. Excessive pressure can harden arteries (atherosclerosis) decreasing the flow of blood and oxygen to the heart. This elevated pressure and reduced blood flow can cause:

- Chest pain, also called angina.
- Heart attack, which occurs when the blood supply to the heart is blocked and heart muscle cells die from lack of oxygen. The longer the blood flow is blocked the greater the damage to the heart.
- Heart failure, which occurs when the heart cannot pump enough blood and oxygen to other vital body organs.
- Irregular heart beat which can lead to sudden death.
- Stroke caused by burst or blocked arteries that supply blood and oxygen to the brain.
- The good news is that, in most cases, blood pressure can be managed to lower the risk for serious health problems.

Common Symptoms

Most people with hypertension are unaware of the problem because it may have no warning signs or symptoms. For this reason it is essential that blood pressure is measured regularly. The signs and symptoms below are not specific and usually do not occur until high blood pressure has reached a severe or life threatening stage:

- Early morning headaches
- Nosebleeds
- Irregular heart rhythms
- Vision changes
- Buzzing in the ears
- Fatigue
- Nausea
- Vomiting
- Confusion
- Anxiety
- Chest pain
- Muscle tremors

Hypertension guidelines

HYPERTENSION DIAGNOSIS	SYSTOLIC PRESSURE RANGE	DIASTOLIC PRESSURE RANGE
Normal blood pressure	Less than 120mmHg	Less than 80mmHg
Elevated blood pressure (prehypertension)	120 to 129mmHg	Less than 80mmHg
Stage 1 hypertension	130 to 139mmHg	80 to 89mmHg
Stage 2 hypertension	Higher than 140mmHg	Higher than 90mmHg
Hypertensive crisis	Higher than 180mmHg	Higher than 120mmHg

Risk Factors

Genetics

The rate of hypertension is greater within family groups, but this tendency need not manifest physically if steps for prevention are taken. A growing body of evidence supports the observation that hypertension results from a complex interplay of genetic, epigenetic and environmental factors. Genetic factors are thought to contribute to approximately 30 to 60% of blood pressure variation. However due to the complex nature of essential hypertension, single genes affecting blood pressure variability remain difficult to isolate and identify. Known genetic factors explain only 3% of blood pressure variance, underscoring the fact that many genetic variants have yet to be discovered. These findings suggest that other causative factors, such as gene and environment interactions and epigenetic factors, may play a vital role in the cause of hypertension.

Age

The incidence of hypertension is greatest among older adults aged over 65 years.

Sex

Young to early middle aged women have a much lower prevalence of hypertension than their male counterparts commonly attributed to the protective effects of oestrogen. Following menopause the incidence increases significantly.

Ethnicity

A number of hypertension risk factors are more prevalent among Aboriginal and Torres Strait Islander people who have a higher blood pressure rate than non-indigenous Australians in every age group. The findings of the 2018 to 2019 Australian Aboriginal and Torres Strait Islander Health Survey and National Health Survey 2017 to 2018 showed that high blood pressure is more severe, occurs earlier and is not controlled as well for indigenous Australians. People who are African American, American Indian/native Alaskan, Asian or native Hawaiian and other Pacific Islanders have a significantly greater chance of developing hypertension than people who are white or Hispanic who are in the same weight category or live in neighbourhoods with similar education levels.

Diet

Unhealthy diets including excessive salt consumption, a diet high in saturated fat and trans fats, low intake of fruits and vegetables and consuming foods that contain high fructose, such as high fructose corn syrup, may increase the risk of developing hypertension.

Obesity and Comorbidities such as Diabetes

Although the relationship between obesity and hypertension is well established in adults and children, the mechanism by which obesity directly causes hypertension is still being researched. Activation of the sympathetic nervous system, the amount of intra-abdominal and intra-vascular fat, sodium retention leading to increase in renal reabsorption and the renin-angiotensin system (a hormone system that regulates blood pressure and fluid and electrolyte balance) are considered to have important functions in the development of obesity related hypertension.

Studies have shown that, in addition to genetic and environmental factors, a number of diseases such as diabetes or kidney disease increase blood pressure. The association of type 2 diabetes and hypertension is extremely common. The extent of its prevalence is dependent on other concomitant associations such as obesity, ethnicity and age.

Hypertension significantly increases the risk of complications of type 2 diabetes so optimal control of blood pressure is key to the management of these patients. Hypertension and type 2 diabetes, along with central obesity and dyslipidaemia (abnormal blood lipids), are key components of metabolic syndrome which is driven by underlying insulin resistance (a component of syndrome X). Hypertension is a problem that is “downstream” from the above mentioned “upstream” problems and what may be initiating it is oxidative damage due to impaired mitochondria (which are responsible for energy production) in the form of adenosine triphosphate (ATP).

Sedentary Lifestyle

Regular moderate to vigorous physical activity is well established as an effective tool in the prevention and management of multiple chronic diseases including hypertension. With sedentary behaviour being so common, and the challenges for many people in adhering to structured exercise guidelines, the authorities advise “move more, sit less, more often” to improve blood pressure control.

Stress

More and more people are experiencing increased anxiety, depression and chronic psychosocial stress brought on by the pandemic, globalisation, cultural changes, socioeconomic changes and stress in the workplace. Although a plethora of studies have investigated the interaction between stress and hypertension this relationship is still contentious. The effects of chronic stress in a number of domains are being investigated including work-related stress, relationship stress, low socioeconomic status and, more recently, race-related discrimination. Associations between each of these and blood pressure outcomes have been reported but the level of evidence varies, and many questions remain regarding the mechanisms involved that may be important in determining the impact of chronic stress on hypertension. See below for more information.

Sympathetic Nervous System (fight, flight or freeze response) Over Activity

The importance of the sympathetic nervous system in the short-term regulation of blood pressure via the modulation of peripheral vascular tone and cardiac output is well established, while the role of the sympathetic nerve activity in long-term blood pressure control is more controversial. Cumulative evidence strongly indicates that in a large number of hypertensive patients sympathetic overactivity mediates the blood pressure elevation. Chronic stress has been associated with heightened sympathetic activation and high blood pressure thus stress reduction measures may reduce sympathetic nerve activity and blood pressure in hypertension.

Consumption of Tobacco and Alcohol

Smoking is the most important modifiable risk factor contributing to hypertension. Continued smoking leads to vascular stiffness and sustained hypertension. Drinking too much alcohol can raise blood pressure to unhealthy levels. Having more than three drinks in one sitting temporarily raises blood pressure but repeated binge drinking can lead to long term increases.

Heavy Metal Exposure

Recent studies have provided compelling evidence linking environmental exposure to heavy metals to increased risks of hypertension (and diabetes). The mechanism through which heavy metals act to increase cardiovascular risk factors remains unknown, although impaired antioxidant metabolism and oxidative stress may play a role. Mercury, cadmium and other heavy metals have a high affinity for sulphhydryl groups, inactivating numerous enzymatic reactions, amino acids and sulphur-containing antioxidants, with subsequent decreased oxidant defence and increased oxidative stress. Heavy metal toxicity, especially mercury and cadmium, should be evaluated in any patient with hypertension.

High Homocysteine Levels (hyperhomocysteinemia)

Homocysteine is an amino acid produced when proteins are broken down. A high homocysteine level can contribute to arterial damage and blood clots in blood vessels. High homocysteine levels cause vascular dysfunction mainly through oxidative effects. Numerous nutritional deficiencies (folate and vitamins B12 and B6 as cofactors of methionine metabolism), genetic variation, drugs (antiepileptic drugs phenytoin and carbamazepine) or diseases (renal insufficiency) affect homocysteine metabolism and influence serum homocysteine levels.

Potassium Deficiency (hypokalaemia)

Potassium depletion is frequent in patients with hypertension. The most common cause of hypokalaemia in a hypertensive patient is diuretic use. Primary aldosteronism, or Conn’s syndrome previously thought to be an uncommon condition, in some studies is now seen to account for between five and 13% of all hypertension. Another cause of hypertension with hypokalaemia is Cushing’s syndrome, a result of excess endogenous glucocorticoid secretion.

Salt (sodium) Sensitivity

There is substantial evidence that suggests some people can effectively excrete high dietary salt intake without an increase in blood pressure and other people cannot. The underlying mechanisms that promote salt sensitivity are complex and range from genetic to environmental influences.

Renin

Hypertension may point to abnormal renin. Produced by the kidneys this enzyme helps control blood pressure and fluid balance. Without renin the body cannot maintain blood pressure when it loses salt. Both high and low levels of renin may underlie high blood pressure.

Vitamin D Deficiency

The majority of observational data suggests that lower levels of vitamin D may be associated with a higher blood pressure and a higher risk of developing hypertension, although conflicting studies exist.

Socioeconomic Status

People from lower socioeconomic backgrounds, and those with poor access to education, are at increased risk of developing hypertension as are those in regional or non-urban communities who have poor general health.

Pharmaceuticals

Certain drugs can cause hypertension or make controlling hypertension more difficult. These drugs include the combined contraceptive pill, non-steroidal anti-inflammatories, some nasal drops and sprays, some cough medicines, eye drops and appetite suppressants.

Hypertension is ominously called the “silent killer” because it usually has no warning signs or symptoms, and many people do not know they have it.

Allergies

Allergies do not directly cause high blood pressure but can be an indirect factor due to inflammation. An inflammatory response to allergens increases blood flow to the affected area. Inflammation can also constrict blood vessels and arteries that lead to major organs like the heart and kidneys. This stiffening of the arteries can lead to elevated blood pressure and is harmful if left untreated. Managing allergies can decrease the risk of high blood pressure.

Oral Health

Periodontitis, severe gum disease, is linked to higher blood pressure in otherwise healthy individuals. Promotion of good oral health may help reduce gum disease and the risk of high blood pressure and its complications.

How To Get The Correct Diagnosis

Diagnosing hypertension is as simple as taking a blood pressure reading. Having blood pressure measured is quick and painless. Early detection is important and most doctors’ offices check blood pressure as part of a routine visit. A sphygmomanometer is an instrument used for measuring blood pressure, typically consisting of an inflatable rubber cuff which is applied to the arm and connected to a column of mercury next to a graduated scale (auscultatory method). This enables the determination of systolic and diastolic blood pressure by increasing and gradually releasing the pressure in the cuff.

Mercury sphygmomanometers were regarded as the gold standard for blood pressure measurement however widespread implementation of the ban on the use of mercury in medical instrumentation, and the development of more modern instruments, have diminished their use.

Newer instruments known as hybrid manometers function using the same principle of mercury manometers with replacement of the mercury column with an electronic pressure gauge (oscillometric). Instruments using the oscillometric method are currently the recommended option in clinical practice. Positioning, size and calibration need to be taken into consideration.

Individuals can also measure their own blood pressure using automated devices however an evaluation by a health professional is important for assessment of risk and associated conditions.

A hypertension diagnosis is rarely given after just one reading because blood pressure fluctuates over the course of the day. This is because environment

can contribute to increased blood pressure, such as the stress felt because of being at the doctor's office also known as white coat syndrome. Blood pressure can also change due to things like physical exertion, pain or extreme heat or cold. This kind of increase in blood pressure is only temporary and soon returns to normal. If the blood pressure is elevated the doctor may request more readings over the course of a few days or weeks to see evidence of a sustained problem.

Conventional Treatment & Prevention

Once a diagnosis of primary hypertension is confirmed doctors will take a detailed history, do a physical examination and perform some basic investigations looking for clues suggestive of secondary hypertension and other comorbidities, assessing the presence and extent of organ damage and the overall cardiovascular risk. Then individual targets for blood pressure control will be set and a treatment plan will be agreed upon including discussion on lifestyle modifications and the options for prescription medication. Healthy lifestyle changes, centred on weight loss and dietary changes, may help reduce high blood pressure if the doctor diagnoses primary hypertension. Patients are encouraged to increase the level of fruits and vegetables in their diet while reducing salt and alcohol intake. These interventions, combined with regular aerobic exercise, can reduce systolic blood pressure by six to 10mmHg. If lifestyle changes alone are not enough, or if they stop being effective, a doctor may prescribe medication. If secondary hypertension is diagnosed treatment is generally the same but will also focus on the underlying condition. Any form of hypertension occurring during pregnancy can adversely affect maternal and foetal health and should be managed in conjunction with a medical specialist. Many people go through a trial-and-error phase with blood pressure medications and may need to try different medicines until they find one, or a combination of medications, that works for them. Some of the medications used to treat hypertension include ACE (angiotensin converting enzyme) inhibitors, calcium channel blockers, diuretics, beta-blockers, angiotensin II receptor blockers (ARBs) and alpha-2 agonists. Conventional antihypertensives are associated with many side effects including cough, headache, increased urination, rapid pulse, tiredness, ankle swelling, lethargy, impotence, wheezing/shortness of breath and dizziness. Other major concerns include the high costs of antihypertensive drugs, their availability and accessibility and reduced patient compliance to consume more than a pill per day.

" Hypertension is ominously called the "silent killer" because it usually has no warning signs or symptoms, and many people do not know they have it."

Olive Leaves
(Olea europaea)

INTERVENTION	Antioxidant	Cardiotonic etc.	Diuretic	Hypotensive	Nervines etc.	Peripheral vasodilator etc.
Arjuna	✓	✓	✓	✓		
Dandelion Leaf			✓			
Garlic	✓			✓		✓
Ginkgo	✓	✓		✓		✓
Hawthorn	✓	✓		✓		✓
Lime Flowers			✓	✓	✓	✓
Maritime Pine	✓	✓				
Mistletoe	✓			✓	✓	✓
Olive Leaves	✓	✓	✓	✓		✓
Rue				✓		✓
Valerian				✓	✓	
Yarrow			✓	✓		✓

Natural Therapies For Treatment & Prevention

A full case history in conjunction with conventional investigations informs the treatment strategy for a hypertensive patient. Understanding the underlying cause for high blood pressure (primary or secondary) is key to providing the best solutions. Hypertension is serious if left untreated however when blood pressure is controlled the risks are greatly reduced. It is not advisable to treat severe (greater than 170/110) or malignant (extremely high or accelerated) hypertension with natural approaches only. Synthetic prescription drugs can be necessary to avoid serious harm in such cases. The important message is that treating hypertension can prevent severe complications and add dramatically to life expectancy. If the condition is mild to moderate, then there is usually a window of opportunity of three to six months to make significant changes to health before medical intervention is required. This is an opportunity where incorporating the layered approach of holistic nutrition and botanical support can offer individualised solutions. The term "lifestyle disorder" has been used to describe hypertension and for many sufferers a change in lifestyle serves as good prevention. The catch is these lifestyle changes need to be kept up for a lifetime. Identifying lifestyle areas for improvement and change such as dietary intake, exercise, weight and environment can be discussed with the patient.

The quote "genetics loads the gun but the environment pulls the trigger" epitomises the complex relationship between human disease and the environment. This famous analogy by Dr. Judith Stern, Distinguished Professor of Nutrition and Internal Medicine at the University of California, Davis, conveys the message that disease characteristics are not only a result of interaction between different genes within a person but also between genes and the environment. American naturopathic physician Louisa Williams says: "Fundamentally, life is determined not by genetics but by epigenetics. That is, the environment people live in and create for themselves primarily determines the expression of their genes and their level of health." Australian nutrient dense, traditional wholefoods advocate Soulla Chamberlain continues: "The eight epigenetic factors that profoundly influence health are what people eat, drink, and think, how they move, sleep, and breathe, how much time they spend in nature and sunshine and the deep social connections they have with others. People can largely control these things by making a conscious choice each day to break old habits and create new, more fruitful, ones. When it comes to health, the individual is in the driver's seat. And that, my friends, is a truly empowering notion."

The options for lifestyle modifications will be bespoke to each patient and dependent on the existing comorbidities.

Diet

- Focus on attaining a healthy weight and reach and maintain a normal body mass index. This includes eating a heart healthy diet of food produced without the use of synthetic chemicals, or genetically modified components, including fresh vegetables, fruits, herbs, spices, nuts, seeds, whole grains, cold water fish (non-mercury for omega 3 fatty acids such as sardines), pastured meats, eggs, garlic, onion, celery and olive oil.
- Drink plenty of filtered water and healthy fluids to avoid dehydration.
- Maintain recommended daily amounts (by age and sex) of calcium (sardines, leafy green vegetables), vitamin D (sunshine, oily fish, egg yolk, liver), potassium (leafy greens, sweet potato, rockmelon, banana) and magnesium (dark leafy greens, unrefined grains and legumes), preferably through diet.
- The DASH (Dietary Approaches to Stop Hypertension) diet is a lifelong approach to healthy eating that is designed to help treat or prevent high blood pressure. It emphasises the right portion sizes, variety of foods, nutrients (such as potassium, calcium and magnesium) and encourages reduced sodium in the diet. It was developed to lower blood pressure without medication in research sponsored by the National Institutes of Health. Be aware of "low fat", highly manufactured, processed foods and instead choose a small amount of unrefined wholefoods.
- Avoid foods that are high in salt, contain refined sugars and are overly processed. Reduce salt intake to less than 5g daily (equivalent to approximately one teaspoon).

- Limit the intake of foods high in saturated fats. Eliminate or reduce trans fats (e.g. partially hydrogenated vegetable oil used in fast foods such as French fries, pizzas and hamburgers, baked goods and microwaveable popcorn).
- Reduce and avoid caffeine stimulants from coffee, black tea and cola.

Lifestyle

- Exercise a minimum of 150 minutes each week. A minimum of 30 minutes a day of intense movement, even broken into 10 minute movement breaks, can improve heart health. The best exercise program for the body should include a balance of cardiovascular, stretching and flexibility movement, strength building and core muscle development. Older people who have been sedentary for a long period may decide that it is too late in their lives to begin exercising, may have chronic pain or do not know how to begin. Suggestions include walks, pedalling a stationary bike, doing 10 minutes of dancing or movement exercise or marching in place while watching a favourite television show or listening to a podcast.
- Reduce and manage stress and advise relaxation techniques. Exercise, walks in natural settings, spend time outside every day, meditation, yoga, breathing techniques, mindfulness, tai chi, qi gong (translates to energy work), bodywork such as massage, social activities and psychotherapy can help with reducing and managing stress. Reduce stress by setting boundaries, eliminating negative practices and people and avoiding situations that increase levels of stress. Seek joy, gratitude and laughter.
- Quit using all tobacco products. There is no safe amount of cigarette smoking. Monitor use of alcohol. For healthy adults that means up to one drink a day for women and up to two drinks a day for men.
- Maintain oral health. Oral health strategies such as brushing teeth twice daily are proven to be very effective in managing and preventing the most common oral conditions, and studies indicate they can also be a powerful and affordable tool to help prevent hypertension.
- Blood pressure monitoring is an important aspect of treatment although care needs to be taken not to over monitor as this can increase anxiety.

The important message is that treating hypertension can prevent severe complications and add dramatically to life expectancy.

Potential Treatment Plans

Essential hypertension	Garlic	Hawthorn	Lime Flowers	Mistletoe	Yarrow
Stage 1 Hypertension	Arjuna	Ginkgo	Maritime Pine	Olive Leaves	Rue
Hypertension with obesity	Arjuna	Dandelion Leaf	Lime Flowers	Olive Leaves	Yarrow
Hypertension with stress	Ginkgo	Hawthorn	Lime Flowers	Mistletoe	Valerian

Desired Herbal Actions and Potential Herbs Include:

Antioxidants

Antioxidants have been shown to lower blood pressure in humans with essential hypertension. They can contribute to the total antioxidant defence system of the body and address the mitochondrial oxidative stress and endothelial dysfunction which contributes to hypertension. Herbs such as andrographis, arjuna, astragalus, baical scullcap, bilberry, garlic, ginkgo, graviola, green tea, hawthorn, Korean ginseng, magnolia, maritime pine, mistletoe, motherwort (considered an excellent tonic for the heart motherwort strengthens the cardiovascular system and is considered a specific remedy that can lower blood pressure), olive leaves, parsley root, pomegranate, saffron, turmeric, withania.

Cardiotonic and Cardioprotective

Increase the force of the contraction of the heart and restore tone and vigour to the heart muscle. Protect the myocardium (muscle layer of the heart responsible for the pumping action of the heart) and decrease the risk of heart damage due to toxins, restriction of blood supply or the oxidative effects of hypertension. Herbs such as arjuna, astragalus, bilberry, coleus, dong quai, ginkgo, green tea, hawthorn, Korean ginseng, magnolia, maritime pine, motherwort, olive leaves, pomegranate, withania.

Diuretics

Diuretics have long been used to treat hypertension in general practice. Diuretics help the kidneys pass more water (increases urine volume) to reduce the amount of fluid in the system. A review of the scientific evidence associated with herbal diuretics showed promising results. Herbs such as arjuna, astragalus, celery, dandelion leaf, Korean ginseng, lime flowers, motherwort, olive leaves, parsley root, yarrow.

Hypotensive

Lower blood pressure levels by supporting cardiac integrity. Herbs such as arjuna, baical scullcap, coleus, garlic, ginkgo, graviola, hawthorn, lime flowers, mistletoe, motherwort, olive leaves, paw paw, reishi, rue, saffron, valerian, yarrow, zizyphus.

Nervines, Adaptogens, Sedatives, Anxiolytics, Antidepressants

Reduce anxiety and stress and sympathetic dominance. Herbs such as astragalus, ginkgo, Korean ginseng, lime flowers, magnolia, mistletoe, motherwort, passion flower, saffron, valerian, withania, zizyphus.

Perpheral Vasodilator, Circulatory Stimulants

Reduce peripheral vascular resistance, dilate the peripheral blood vessels and improve circulation to peripheral tissues to assist in reducing blood pressure. Herbs such as garlic, ginkgo, hawthorn, lime flowers, mistletoe, motherwort, olive leaves, rue, yarrow.

Dandelion
(Taraxacum officinale)

Herbal Support Could Include:

HERB NAME	DESCRIPTION	ACTIONS
Arjuna *(Terminalia arjuna)* 	Arjuna is a popular Indian medicinal plant and the bark has been used as a cardiotonic from time immemorial. Several clinical studies have reported its efficacy mostly in patients with hypertension, ischemic heart disease (where the heart is starved of oxygen due to a reduced blood supply) and heart failure.	Cardioprotective Cardiotonic Hypotensive Inotropic (changes the force of the heart's contractions) Antioxidant Anti-inflammatory Diuretic
Dandelion Leaf *(Taraxacum officinale)* 	Dandelion leaf has high levels of potassium and can be useful for the treatment of elevated systolic pressure in the elderly. Preliminary human clinical trials have confirmed the diuretic effect of dandelion leaf fluid extract.	Diuretic
Garlic *(Allium sativum)* 	An abundance of scientific research supports garlic's positive impact on the cardiovascular system, including lowering blood pressure, reducing cholesterol and inhibition of clotting. It is thought to increase nitric oxide production, resulting in smooth muscle relaxation and vasodilatation. Garlic preparations have been found to be superior to placebo in reducing blood pressure in individuals with hypertension.	Hypotensive Circulatory Stimulant Antioxidant Vasodilator Anti-inflammatory
Ginkgo *(Ginkgo biloba)* 	In a recent human clinical trial blood pressure decrease was observed in 43 hypertensive patients taking ginkgo. A great concern of chronic hypertension is stroke. Ginkgo has been widely used in the treatment of stroke in China.	Antioxidant Cardioprotective Circulatory Stimulant Peripheral Vasodilator Hypotensive Anti-inflammatory

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Hawthorn *(Crataegus monogyna)* 	Hawthorn has a long herbal history of serving the cardiovascular system including assisting coronary circulation and increasing the strength of the heart's contraction. Scientific studies now support its use. In a pilot study where 500mg of hawthorn was taken daily for 10 weeks there were promising results on the diastolic component of mild hypertension.	Cardioprotective Cardiac Tonic Hypotensive Peripheral Vasodilator Antioxidant
Lime Flowers *(Tilia cordata)* 	Traditionally lime flowers have been used for arteriosclerotic (narrowing of the arteries caused by a build up of plaque) hypertension and specifically for raised arterial pressure associated with arteriosclerosis and nervous tension.	Hypotensive Peripheral Vasodilator Anxiolytic Diuretic Sedative Nervine
Maritime Pine *(Pinus pinaster)* 	Oxidative stress is important in the development and maintenance of hypertension. Many clinical and pharmacological studies suggest that natural antioxidants can prevent oxidative damage. Among the natural antioxidant products Pycnogenol has received considerable attention because of its strong free radical scavenging activity against reactive oxygen and nitrogen species. Pycnogenol is the registered trademark and brand name of a standardised concentrate (antioxidant/ bioflavonoid mixed extract) isolated from French maritime pine bark. The findings of a recent systematic review and meta-analysis demonstrated the favourable effects of pycnogenol supplementation on blood pressure reductions especially among hypertensive participants. Full spectrum maritime pine bark also contains these antioxidants along with other vitamins and phytonutrients. Previous studies have demonstrated that other maritime pine bark extracts also possess remarkable antioxidant activities similar to pycnogenol.	Antioxidant Cardioprotective Anti-inflammatory

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Mistletoe *(Viscum album)* 	Extracts from mistletoe have shown evidence of vasodilation and thus, antihypertensive effects. The antihypertensive effect of mistletoe was recorded in 1907 by a French physician, Renè Gaultier however only recently has antihypertensive work on mistletoe re-emerged. A 2014 pilot study assessing the antihypertensive effect of mistletoe showed promise.	Hypotensive Peripheral Vasodilator Antioxidant Sedative
Olive Leaves *(Olea europaea)* 	There is traditional and widespread use of olive leaves for high blood pressure, cardiovascular diseases, diabetes and high cholesterol. In a recent human study researchers randomised people with stage 1 hypertension to take either 500mg of olive leaves or 12.5 to 25mg of captopril, a medication for high blood pressure, twice a day. After eight weeks blood pressure was significantly lower for both groups. The team concluded that olive leaves were as effective at lowering blood pressure in people with stage 1 hypertension as captopril.	Hypotensive Cardiotonic Cardioprotective Vasodilator Antioxidant Diuretic
Rue *(Ruta graveolens)* 	In her book, Dorothy Hall's Herbal Medicine, the renowned Australian naturopath says rue is the classic essential partner for nettle leaf *(Urtica dioica)* for all circulatory disorders of the veins. She reasons that nettle may cause arterial blood pressure to rise if overused. "Rue is to veins what nettles are to arteries. By using both together any too-sudden changes in blood pressure may be avoided. If both arteries and veins improve together, there should be no consequent localised pressure change which may otherwise cause any weak spots in blood-vessel walls to distend. Her rue "person picture" was someone whose systolic and diastolic blood pressures could be "alarmingly elevated".	Circulatory Stimulant Hypotensive Anti-inflammatory

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Valerian *(Valeriana officinalis)* 	Valerian may have a positive effect on anxiety and stress, as well as on vasospastic activity (spasms in the arteries that cause them to narrow and reduce blood flow to the arms and legs. The disorder is often experienced as a response to cold or stress).	Anxiolytic Sedative Relaxing Nervine Hypotensive
Yarrow *(Achillea millefolium)* 	Renowned herbalist David Hoffman says yarrow lowers blood pressure due to a dilation of the peripheral vessels. Yarrow is said to specifically lower an elevated diastolic blood pressure.	Diuretic Hypotensive Peripheral Vasodilator

Conclusion

Hypertension has multiple causes and therefore requires a multifaceted treatment. It should not be taken lightly. By keeping blood pressure within the normal range a patient's life will not only be lengthened but their quality of life will improve as well. This is especially true when natural measures, rather than drugs, are used. In the words of alternative medicine advocate Deepak Chopra: "There is no escaping that high blood pressure, like every lifestyle disorder, poses two choices that many people find unpalatable: live with positive habits or resign yourself to taking medication as you grow older. We live at a time when prevention has proven itself over and over, while the general population becomes more sedentary and obese. In the end, all lifestyle options are a matter of personal choice. Moving in the right direction doesn't need to be drastic if you start early enough..."

Resources

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